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childbirth, in the exhaustion delirium of excessive lactation, in anæmia, in a post-pneumonia or post-typhoid case. In times of war and stress soldiers frequently suffer from this type of delirium and the ancient descriptions of the old-time furious lunatics are largely drawn from such cases.

In the milder cases, by falling in with the mood of the patient—by taking the supposedly-finished bit of hypothetical garment, by diverting the attention as the excitement wanes, one can keep such patients in bed and prevent their hopping in and out and walking around, whereas an offer made to restrain them would result in most violent and vehement protest and maybe lead up to an assault. In the more severe grades of such deliria the same character traces are present, but the patients cannot be diverted, and require for the most part physical or chemical restraint to which I shall refer later.

(To be continued)

HIGH CALORIC FEEDINGS FOR TYPHOID PATIENTS *

By MARION ROTTMAN
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WITHIN the past five years experiments have been made to prove that withholding food from a patient with a temperature is a fallacy. Heat is produced when any material combines with oxygen. Then food is to the body what fuel is to an engine, and when food is withheld the reserve supply of nourishment stored in the body oxidizes. The reserve supply consists of the carbohydrates stored in the liver and muscles as glycogen and the fatty deposits under the skin. When the first reserve, that stored in the liver and muscles, is exhausted the fat is consumed and eventually the protein-holding tissues. Of course during this process the body loses in weight and when, after an ordinary run of fever, the patient begins to convalesce, his convalescence must extend over the period of repair to those tissues consumed.

The principal food elements which, when taken into the body, yield heat and energy and repair tissue, are carbohydrates, proteins and fats. Carbohydrates yield a large amount of heat and energy and comprise

* Read before the Bellevue Alumnæ Association, December 18, 1911.

sugar in all its forms, starches and cellulose. They are found chiefly in cereals, potatoes and in milk, which contains lactose, commonly called milk sugar. Protein repairs tissue. It is found in the lean of meat, white of egg, as egg albumen, in the casein of milk and cheese, in oatmeal, and all kinds of fish. Fats are readily oxidized and also produce heat and energy, and are stored in the body for future use.

Heat is measured in heat units called calories. There are two calories. The one which is the amount of heat required to raise 1 gram 1° Centigrade is called the small calorie. The amount of heat required to raise 1 kilogram 1° Centigrade is called the large calorie. It is the large calorie referred to in High Caloric Diet.

The caloric value of food is determined by analyzing the different articles of diet and ascertaining the percentage of fat, proteid and carbohydrates. Then, knowing that 9.3 calories are required to burn 1 gram of fat, or that 9.3 calories of heat are yielded when 1 gram of fat is burned, the caloric value of food rich in fat is learned. The caloric value of protein and carbohydrates is learned in the same manner, or that 1 gram of either yields 4.1 calories.

A man weighing 150 lbs. at rest in bed requires about 2500 calories daily to maintain his equilibrium because, being at rest, there is no waste of heat or energy. At hard labor, he would require between 4000 and 5000 calories. With an elevation of temperature, he would require almost as many calories as a man at hard labor, or between 3000 and 4000 calories. If not supplied this amount, his own fat and muscle are oxidized. If fed this amount, he ends the period of fever without much loss of body tissue. Thus he retains his strength and convalescence is hastened. If withheld, his convalescence must extend over the period of tissue repair.

Then the question arises as to what food could be given a typhoid fever patient running a high temperature. The following feedings have proved very successful with typhoid fever patients in Bellevue Hospital: The *first day* give: Milk oz. vi with cream oz. i and lactose grms. v. Feed at 9, 11, 1, 3, 5, and 7 during day, and 10, 1, 4, and 7 at night. If this is retained and no bad symptoms arise, increase lactose and cream, or give milk oz. vi with cream oz. ii and lactose grms. x. If there is diarrhoea, decrease the amount of cream and increase lactose. If tympanites appear, decrease lactose and increase cream.

The *second day* he may have cereal with cream and milk sugar, an egg, soft boiled, a piece of bread or toast with butter, and a glass of milk.

Three heavy feedings a day at 9, 1, and 5, with cocoa, milk and cream, or lemonade with milk sugar at 11, 3, and 7. All food must be weighed

or measured and, knowing the value in calories of the food given, the caloric value of all the food given must be summed up and charted thus:

- 7 A.M. Egg i; toast or bread, 1 slice, with butter grms. xx. coffee oz. vi with cream oz. ii and lactose grms. xxxv. Total, calories, 567.
9 A.M. Cocoa, with cream oz. iii and lactose grms. lx. Total, calories, 426.
11 A.M. Milk oz. vi, cream oz. ii, with lactose grms. xv. Total, calories 322.
1 P.M. Egg i, mashed potato grms. xxx, custard oz. iv, toast or bread 1 slice with butter grms. x, coffee oz. vi, with cream oz. ii, and lactose grms. xxxv. Total, calories, 857
3 P.M. Lemonade with lactose grms. 120. Total calories, 480.
5 P.M. 1 Egg; rice oz. iv, with cream oz. iii, and lactose grms. xx, bread, slices ii, with butter grms. xx, prunes iv, tea with cream oz. ii, lactose grms. xx. Total calories, 1146.
7 P.M. Lemonade with lactose grms. 120, albumen of 1 egg, Total calories, 530.
10 P.M. Cocoa with cream oz. iii, lactose grms. lx. Total calories, 426.
1 A.M. Milk oz. iv, with cream oz. ii. Total calories, 216.
4 A.M. Milk oz. iv, with cream oz. ii. Total calories, 216.

Total calories for 24 hours, 5186.

The caloric value of the different articles of food given are as follows:
Rice, oz. i = 50 calories; cream of wheat, oz. i = 35 calories; oatmeal, oz. i = 35 calories; custard, when made by receipt (depends on ingredients) = 315 calories; bread slices, iii = 100 grms. or 200 calories; milk, 0 ii = 740 calories; milk, 0 i = 23 calories; cream, oz. i = 62 calories; lactose, grms. i = 4 calories; eggs, i = 80 calories; yolk = 30 calories; white = 50 calories; butter, oz. i = 225 calories; crackers, iv = 50 calories; mashed potato, tablespoonfuls iv = 100 calories, oz. i = 50 calories (if cream or butter added, amount to be charted); apple sauce, iv tablespoonfuls = 100 calories; stewed prunes, iv = 100 calories.

THE DOCTOR AND THE NURSE IN INDUSTRIAL ESTABLISHMENTS *

By LILLIAN D. WALD

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THE application of the established principles of safety, sanitation and hygiene to shop practice rests upon three fundamental conditions: (1) Intelligence and goodwill on the part of employers that they may desire

* Read in discussion at the meeting of the Academy of Political Science, Columbia, November 11, 1911. Reprinted from the *Proceedings of the Academy of Political Science*, Vol. II. No. 2, January, 1911.